

## **REMARKS**

Claims 1-20 are pending in the application. Reconsideration of the claims is respectfully requested.

Claims 1 and 9 have been amended to clarify that the tunable waveguide material and the amplifying material are in a parallel relationship with one material lying beside the other. It is believed that this merely clarifies the claims by expressly stating what was already inherent in the claims, and therefore the scope of this claims is not reduced by the amendment.

Applicants note the Examiner's attachment regarding Applicant's submission of informal drawings with the application. Applicants will provide formal drawings upon allowance of the application.

### **Rejection under 35 U.S.C. § 112, first paragraph**

Claims 1-20 are rejected under 35 U.S.C. § 112 first paragraph for failing to comply with the enablement requirement. Applicant respectfully disagrees with the rejection, and contends that the claims comply with the enablement requirement.

In particular, it is stated that claim 1 is a single step method claim. It is then stated that claim fails to comply with MPEP § 2164.08(a), which is a PTO rule directed to a single means claim. Applicant respectfully points out that method claims and means claims are different types of claims and that MPEP § 2164.08(a) has no bearing on method claims. There is no restriction on having a method claim that claims a single step. There is, therefore, no grounds for this rejection of claim 1, and the rejection should be withdrawn.

Applicant also points the Examiner to independent claim 9, which is a product claim. Claim 9 was rejected under 35 U.S.C. § 112, first paragraph for failing the enablement requirement, but the Examiner provided no description as to why this claim, and its dependent claims, failed the enablement requirement. Applicant respectfully requests clarification of the rejection of this claim under 35 U.S.C. § 112, first paragraph. Was claim 9 also rejected as being not enabled in view of MPEP § 2164.08(a)? If so, then this rejection is also unfounded, since claim 9 is not a single means claim. If claim 9 and its dependent claims are not rejected under 35 U.S.C. § 112, first paragraph, then the Examiner is requested to state this expressly.

Applicant respectfully asserts that all claims comply with 35 U.S.C. § 112, first paragraph.

### **Rejection under 35 U.S.C. § 112, second paragraph**

Claims 1-20 are rejected under 35 U.S.C. § 112 second paragraph for being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor regards as the invention. The Applicants respectfully traverse this rejection. Claim 1 has been amended to clarify that the charge carriers are injected simultaneously into the tunable material and into the amplifying material.

In the description of this rejection, the Examiner cites from claim 1, and then states it “is not clear as what the injecting carriers is injected into the tunable material and amplifying material, whether they are electric current or optic signal which render the claim confusing, vague and indefinite.” Applicant still does not understand this rejection, and requests that the Examiner restate the rejection clearly and in a manner that can be understood.

According to the claim, charge carriers (electric current) are injected into the tunable material and amplifying material simultaneously. As a result of the carrier injection, light propagating along the tunable material waveguide is amplified by the amplifying material. Also, as a result of the carrier injection, the refractive index of the tunable material is changed to a desired value. Applicant requests the Examiner to explain exactly what it is about this claim that is confusing, vague and indefinite.

Applicant also notes that independent claim 9 and its dependent claims are rejected under 35 U.S.C. § 112, second paragraph, even though the Examiner’s detailed comments address only claim 1. If claim 9 and its dependent claims are rejected under 35 U.S.C. § 112, second paragraph, then the Examiner is requested to explain why. If claim 9 and its dependent claims are not rejected under 35 U.S.C. § 112, second paragraph, then the Examiner is requested to change the description of the rejection to reflect that these claims are not rejected under 35 U.S.C. § 112, second paragraph.

Applicant respectfully asserts that all claims comply with 35 U.S.C. § 112, second paragraph.

### **Rejection under 35 U.S.C. §102(b)**

Claims 1-20 are rejected under 35 U.S.C. §102 (b) as being anticipated by Sahlen (U.S. Patent 5,416,866). Sahlen was described in the response submitted on May 5, 2003.

To anticipate a claim, the reference must teach every element of the claim. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or

inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Therefore, all claim elements, and their limitations, must be found in the prior art reference to maintain a rejection based on 35 U.S.C. §102. Applicant respectfully re-asserts that Sahlen does not teach every element of independent claims 1 and 9, for the reasons provided previously, and therefore fails to anticipate claims 1-20.

Applicant summarizes Sahlen's deficiencies as follows:

The structure of the device of claim 9, and the structure disclosed in the preamble to claim 1, includes an amplifying material in a parallel relationship beside a tunable waveguide material. As a result of this structure, light that propagates along the tunable waveguide is amplified, as it passes along the tunable waveguide, through an interaction with the amplifying material that lies beside the tunable waveguide. The method claim, claim 1, is directed to passing current through the tunable waveguide material and the amplifying material simultaneously, so as to amplify light as it propagates along the tunable waveguide.

Sahlen fails to teach this. Sahlen teaches a tunable waveguide (5'), located in the tunable waveguide sections (1, 2) of a device (30). One end of the tunable waveguide is coupled to active material (17) in the amplifying section (16) of the device. Accordingly, Sahlen fails to teach a tunable waveguide in a parallel relationship beside an amplifying material. Furthermore, since Sahlen's active material (17) is disposed beyond one end of the tunable waveguide (5'), the active material (17) in Sahlen's device amplifies the light that is propagating along the active material waveguide. Sahlen's device does not amplify light that is in the tunable waveguide.

For these reasons, Applicant respectfully asserts that Sahlen fails to teach all the elements of claims 1 and 9, and that these claims are allowable over the cited art.

Dependent claims 2-8 and 10-20, which are dependent from independent claims 1 and 9, were also rejected under 35 U.S.C. §102(b) as being unpatentable over Sahlen. Dependent claims 2-8 and 10-20 include all of the limitations of their respective base claims and any intervening claims, and recite additional features which further distinguish these claims from the cited references. Therefore, dependent claims 2-8 and 10-20 are also in condition for allowance.

With reference to claim 4, the Examiner has restated his assertion that Sahlen discloses, in FIG. 1, disposing repeated lengths of amplifying material along a direction parallel to the

waveguide, as shown in Figure 1. In the previous response it was pointed out that FIG. 1 did not disclose amplifying material. Instead, Sahlen discloses tunable material, i.e. material whose refractive index is changed when a current passes through it. The Examiner is requested to justify the position that Figure 1 shows amplifying material.

### **Conclusion**

In view of the reasons provided above, it is believed that all pending claims are in condition for allowance. Applicant respectfully requests favorable reconsideration and early allowance of all pending claims.

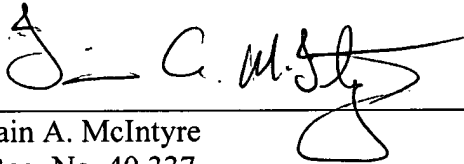
If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicant's attorney of record, Iain A. McIntyre at (612) 436-9610.

Respectfully submitted,

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Date: November 24, 2003

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